

What's Wind Got To Do With It?

Standards of Learning

Science 6.9

Objective

Student will

- learn that wind causes soil erosion.
- learn what farmers do to manage soil erosion.

Materials

- 1 metal pie pan for each group
- Goggles for each student
- 1 small bag of top soil
- 1 straw for each student
- 1 lab sheet for each student
- 1 green sponge for each group
- 1 pair of scissors for each group

Background Knowledge

Review the term renewable resource. A substance of economic value that can be replaced or replenished in the same amount or less time as it takes to draw the supply down. Some renewable resources have essentially an endless supply, such as solar energy, wind energy and geothermal pressure, while other resources are considered renewable even though some time or effort must go into their renewal, such as wood, oxygen, leather and fish. Most precious metals are considered renewable as well; even though they are not naturally replaced, they can be recycled because they are not destroyed during their extraction and use. Wind is a renewable resource. Captured wind can produce energy to power windmills and eventually power can be generated to provide electricity to homes and businesses. Wind can also be quite damaging to our land and soil. Well buffered field show little signs of erosion due to wind break such as trees or buildings surrounding the field. The absences of wind breaks allows for erosion which strips away valuable top soil.

Procedure

1. Put on goggles.
2. Put pie pan in the center of the table, and just cover the bottom with a layer of topsoil.
3. Take turns using the straw to blow **gently** with your direct breath over the top soil.
4. Observe what happens.
5. Repeat for each student.
6. What changes did you (the wind) create in the layer of flat top soil?
7. Now cut the green sponge into several pieces.
8. Shake your pan so that your top soil is flat again.
9. Place the sponge pieces around the perimeter of the soil, and repeat steps 3-6.



10. Discussion questions:

- The sponge was to simulate trees being planted around farms as a wind break. According to this experiment do you think they are effective? Why? Why not?
- What other ways could farmers effectively stop the wind from eroding the soil?
- Is this safe for the environment?

Extension

1. Have the students draw what they just saw.
2. Have a farmer come to the class to talk about farming conservation methods.
3. Some farmer's use fences instead of natural trees or bushes, which do you think is better. Why?



WHAT'S WIND GOT TO DO WITH IT? Lab Report Form

Question: How does farming technique affect amount top soil disrupted by the wind?

Collect Information: Perform a simulation

Hypothesis: If the farming technique is _____,
then the amount of top soil disrupted will _____.

Experiment:

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- 4 Observe what happens.
- 5 Repeat for each student.
- 6 What changes did you (the wind) create in the layer of flat top soil?
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Results:

1. What changes did you (the wind) create in the layer of flat top soil?
2. What changes did you (the wind) create in the layer of flat top soil with the sponges added?

Conclusion:

Was your hypothesis supported? Why or Why not? Explain your results. How can this be extended? Can you think of a better idea?

